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10/695,609	10/28/2003	Eiichi Iino	81839.0142	6295

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HOGAN & HARTSON L.L.P.  
1999 AVENUE OF THE STARS  
SUITE 1400  
LOS ANGELES, CA 90067

EXAMINER
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SONG, MATTHEW J

ART UNIT	PAPER NUMBER
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1722

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/695,609  
Filing Date: October 28, 2003  
Appellant(s): IINO ET AL.

**MAILED**  
**JUL 02 2007**  
**GROUP 1700**

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John Scherlacher  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 2/26/2007 appealing from the Office action mailed 4/19/2006.

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**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 12 and 13. Claims 10-11 are allowed.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is substantially correct. It is noted that a summary for claims 10 and 11 is present, however claims 10 and 11 are allowed and not on appeal.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

A substantially correct copy of appealed claims 12 and 13 appears on page 15 of the Appendix to the appellant's brief. The minor errors are as follows: Claims 10 and 11 are present in the claim appendix, however claims 10 and 11 are allowed and not on appeal.

**(8) Evidence Relied Upon**

5,911,822

Abe et al.

6-1999

Wolf et al. "Silicon Processing in the VLSI Era, Vol. 1: Process Technology, Lattice Press, Sunset Beach, CA, USA, (1986), pp 59-61.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

- Claims 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Abe et al (US 5,911,822).

In a method of forming a silicon single crystal using the Czochralski method, note entire reference, Abe et al discloses the tip end of a seed crystal is formed into a conical shape or pyramidal shape in order to have a sharply pointed shape or a truncation thereof (col 8, ln 60-65), this reads on applicant's silicon seed crystal which does not have a straight body portion but has body shape selected from the group consisting of a cone shape and a pyramid shape. Abe et al also discloses growing a silicon monocrystal ingot having a desired diameter without necking (Abstract). Abe et al also discloses a tip end portion of the seed crystal is melted to have a desired size and the seed crystal is slowly pulled upwardly from the melt (col 10, ln 1-67). Abe et al also teaches a seed crystal cut from a large monocrystalline ingot (col 8, ln 10-25).

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- Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al (US 5,911,822) as applied to claim 13 above, and further in view of Wolf et al (Silicon Processing in the VLSI Era, Vol 1: Process Technology, Lattice Press, Sunset Beach, CA, USA, pp 59-61, 1986).

Abe et al discloses all of the limitations of claim 12, as discussed previously, except Abe et al does not teach the claimed oxygen concentration of 12 ppma or less.

Wolf et al disclose processing and material parameters typical in Si. The typical oxygen concentration is 10-20 ppma (pg 59). Wolf et al also teaches oxygen has a beneficial strength effect (pg 61). Overlapping ranges are held to be obvious (MPEP 2144.05).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Abe et al by using a seed crystal having an oxygen concentration between 10-20 ppma, as taught by Wolf et al, to obtain a sufficiently strong seed crystal for pulling a single crystal silicon ingot.

#### **(10) Response to Argument**

Appellant's invention is directed to a method of growing a silicon single crystal by using a particular seed crystal comprising a desired oxygen concentration and shape. The main issue is whether appellant is entitled to a patent even though the Examiner has provided prior art showing all of the claimed features of the instantly claimed invention without rebutting the rejection of record because appellant was previously issued a patent over a similar invention.

#### **Arguments regarding claim 12**

Appellant alleges that the rejection of claim 12 is inconsistent with the issuance of U.S. Patent No. 6,670,036. The Examiner agrees that the rejection of claim 12 is inconsistent with the

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issuance of US 6,670,036. However, the Examiner has presented a valid *prima facie* case of obviousness which has not properly been rebutted. Abe et al teaches a conventional seed crystal is cut from a large monocrystalline ingot (See column 8, lines 14-20). Wolf et al teaches a Czochralski Si crystal typically has oxygen concentrations of 10-20 ppma (See page 59), which overlaps the claimed oxygen concentration range. Appellant has not provided any unexpected results or any other arguments to rebut the *prima facie* case of obviousness made by the Examiner. Clearly, cutting a seed crystal from a crystal have conventionally known oxygen concentrations cannot be basis of patentability.

In response to appellant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a seed crystal which does not have a straight body portion (pg 10 of the appeal brief)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claim 12 does not recite the limitation of a seed crystal which does not have a straight body portion. This limitation is recited in claim 13, not claim 12.

Appellant's argument that claims 12 differs from claim 10, which is allowable, only in the performing of necking operations is noted but is not found persuasive. The performing of necking operations is patentable over Abe et al because Abe et al specifically teaches away from performing necking operations. (See Abstract).

### **Arguments regarding claim 13**

Appellant alleges that the rejection of claim 13 is inconsistent with the issuance of U.S. Patent No. 6,670,036. First, Appellant cites claim 1 of US 6,670,036, which does not have any of

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the limitations of claim 13. Second, assuming appellant intended to cite claim 3 of US 6,670,036, the Examiner would agree that the rejection of claim 13 is inconsistent with the issuance of US 6,670,036. However, the Examiner has presented prior art, Abe et al (US 5,911,822), which teaches all of the claimed limitations and the rejection has not been properly rebutted by appellant. Clearly having a patent does not automatically entitle an inventor to a second patent when there is prior art which teaches all claimed limitations.

Appellant's argument that it is impossible for the seed crystal of Abe et al to become a seed crystal in accordance with the present invention as long as it has a straight body portion is noted but not found persuasive. It is important to note the specific language used in the claim. First, the claim uses "comprising" language, thus is open to additional features not claimed. Second, the claim recites, "a silicon seed crystal which does not have a straight body portion **but has** a body shape selected from the group consisting of a cone shape, a pyramid shape..." The limitation is actually not an exclusion, but it merely requires a cone or pyramid shape. Abe et al clearly teaches a seed crystal with a cone or pyramid shape. (See Figs 2A-2D and column 8, lines 60-65). While Abe et al teaches a crystal with a straight body portion, the seed crystal also has a conical or pyramid shaped tip, thus meets the claimed limitation. Appellant's seed crystal is not limited to without a straight body portion because of the comprising language and seed crystal has a body shape with a cone shape or pyramid shape, thus at least comprises the seed crystal claimed by applicant. Claim 13 is not limited to a seed crystal with only a cone or pyramid shape, as implied by appellant, because of the "comprising" language. It is also noted that the cone and pyramid shape seed crystals taught by appellant would also appear to shape straight

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body portions since a pyramid has flat faces; therefore the claim is actually only directed to a seed crystal with a body shape of a cone or pyramid shape, which is taught by the prior art.

Appellant's argument that claims 13 differs from claim 11, which is allowable, only in the performing of necking operations is noted but is not found persuasive. The performing of necking operations is patentable over Abe et al because Abe et al specifically teaches away from performing necking operations. (See Abstract).

In conclusion, the Examiner has provided valid rejections over the pending claims which have not been rebutted by appellant. Appellant merely relies on the previously allowed claims in US 6,670,036 which properly responding to the rejections made by the Examiner.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

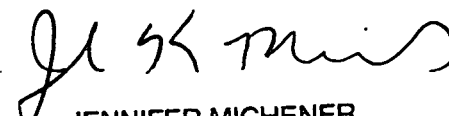
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